

IAFG Rec'd PCT/PTO 27 MAR 2006

Re: Point V:

I. Claim 1:

1. Document US-A-2001/0050717, hereinafter referred to as D1, describes (see paragraphs [0041] to [0044] and Figures 1 and 2) an optical module (20) with a substrate (21), an unpackaged semiconductor device (4) flip-chip mounted on the substrate (21) and a lens unit (2, 3) for projecting electromagnetic radiation onto the semiconductor device (4), the lens (2, 3) comprising a lens holder (3) and a lens arrangement with at least one lens (2) and the substrate (21) having at least one thin region and a thick region supporting the thin region.
2. Document D1 consequently anticipates all the features of claim 1, which means that claim 1 does not appear to satisfy the requirements of Article 33(2) and (3) PCT.
3. It is also pointed out that the document Patent Abstracts of Japan, vol. 12, No. 273 (E-639); & JP-A-63 052 491, hereinafter referred to as document D2, describes an optical module having a substrate (9), an unpackaged semiconductor device (1) mounted on the substrate (9) and a lens unit (2, 4) suitable for projecting electromagnetic radiation onto the semiconductor device (1), the lens (2, 4) comprising a lens holder (2) and a lens arrangement with at least one lens (4) and the substrate (9) having at least one thin region and a thick region supporting the thin region.
4. Consequently all the features of claim 1 are likewise known from document D2.

II. Claims 2 to 13:

1. The additional feature set forth in claim 2 is known from document D2, which means that claim 2 does not appear to satisfy the requirements of Article 33(2) and (3) PCT.
2. The additional features of claims 3 to 6, 10, 11 and 13 are known from document D1, which means that claims 3 to 6, 10, 11 and 13 also do not appear to satisfy the requirements of Article 33(2) and (3) PCT.
3. The additional feature set forth in claim 7 is obvious to the average person skilled in the art because, according to document D1, the semiconductor device (4) is flip-chip mounted on the substrate (21) and the latter is, on the other hand, electrically connected to the flexible wiring board (5). There must therefore be a conductive connection in the substrate between the two

contacts, which connection can be produced by the sheathing of conductors with plastic. claim 7 does not therefore appear to satisfy the requirement of Article 33(3) PCT.

4. The additional feature set forth in claim 8 is known from document D1 if the thin region is identified with the flexible substrate (5) and the thick region with the stepped substrate (21). claim 8 does not therefore appear to satisfy the requirement of Article 33(2) and (3) PCT.
5. The lens holder (3) in the module according to document D1 also has support elements (23), which means that claim 9 likewise does not satisfy the requirements of Article 33(2) and (3) PCT.
6. Document D1 describes an optical module in which the semiconductor device (4) is disposed on the side of the substrate (21) facing away from the lens unit and in which the thin region in the substrate (21) has an opening (22) through which electromagnetic radiation is projected by the lens arrangement (2, 3) onto the semiconductor device (4).

Consequently, all the features of claim 12 are known from document D1, which means that claim 12 does not appear to fulfill the requirements of Article 33(2) and (3) PCT .

Re: Point VII:

1. Contrary to the requirements of Rule 5.1 a) ii) PCT, neither the relevant prior art disclosed in documents D1 and D2 nor these documents are cited in the description.

Re: Point VIII:

1. Claims 6 ("recessing or milling out") and 10 ("laser-welded") are directed at an item, but describe it using a feature of the method of its manufacture. Such "product-by-process" claims can only be clear within the meaning of Article 6 PCT if the process feature can be unambiguously recognized from the finished item. However, that is not the case here.